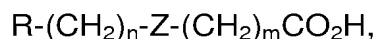


AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) A radioactively labeled analog of a fatty acid that is taken up by mammalian tissue, comprising the formula:



wherein n is 8-22, m is 1-10, R is a CH₃, aryl or a heterocyclic group, and Z is a cyclic or heterocyclic organic substituent which causes said analog to be metabolically trapped in said tissue said analog further comprising a radioactive isotope that is bonded to a carbon atom of the analog.

2. (Currently amended) The radioactively labeled analog of a fatty acid of claim 1, wherein said organic substituent is bonded to the fatty acid analog at the ~~C2, C3~~; C3, C4; C4, C5; or C5, C6 positions.

3. (Original) The radioactively labeled analog of a fatty acid of claim 1, wherein said organic substituent causes said analog to be metabolically trapped in said tissue by permitting the occurrence of the first beta-oxidation step in which the carbon atom to which said substituent is bonded is beta to the carboxyl carbon atom, while preventing the cleaving off from said analog of the two carbon atoms to the right of the carbon atom to which said substituent is bonded.

4. (Original) The radioactively labeled analog of a fatty acid of claim 1, wherein said tissue is heart tissue.

5. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein said tissue is liver tissue.

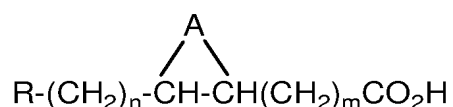
6. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein said tissue is tumor tissue.
7. (Original) The radioactively labeled analog of a fatty acid of claim 1, wherein said analog emits detectable positrons after being taken up by said tissue.
8. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein said analog emits detectable photons after being taken up by said tissue.
9. (Original) The radioactively labeled analog of a fatty acid of claim 1, wherein the carbon chain of said fatty acid is saturated.
10. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein the carbon chain of said fatty acid is unsaturated.
11. (Original) The radioactively labeled analog of a fatty acid of claim 1, wherein said radioactive isotope comprises ^{18}F , ^{123}I , ^{131}I , $^{34\text{m}}\text{Cl}$, ^{75}Br , ^{76}Br and ^{77}Br .
12. (Original) The radioactively labeled analog of a fatty acid of claim 1, wherein said cyclic organic substituent is a cyclic alkane.
13. (Original) The radioactively labeled analog of a fatty acid of claim 12, wherein said cyclic alkanes is selected from the group consisting of cyclopropyl, cyclobutyl and cyclopentyl.
14. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein said heterocyclic organic substituent comprises a 3 to 5-membered heterocyclic ring structure.
15. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein said aryl group comprises a 5 to 7-membered ring structure.

16. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 1, wherein said heterocyclic group comprises a 3 to 5-membered ring structure.

17. (Original) The radioactively labeled analog of a fatty acid of claim 11, wherein said radioactive isotope of a halogen is bonded to a carbon atom on the straight chain of said analog.

18. – 31. (Cancelled)

32. (Withdrawn) A radioactively labeled analog of a fatty acid that is taken up by mammalian tissue, comprising the formula:



wherein:

A = (CH₂)_x, O, S

x = 1, 2, 3, 4

cis and trans; R,R and S,S

m = 0-10

n = 14 - 8

R = ¹⁸F-phenyl or ¹²³I-phenyl

and wherein the cyclic or heterocyclic organic substituent -CH-A-CH- causes said analog to be metabolically trapped in said tissue.

33. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said organic substituent is bonded to the fatty acid analog at the C2, C3; C3, C4; C4, C5; or C5, C6 positions.

34. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said organic substituent causes said analog to be metabolically trapped in said tissue by permitting the occurrence of the first beta-oxidation step in which the carbon atom to which said substituent is bonded is beta to the carboxyl carbon atom, while preventing the cleaving off from said analog of the two carbon atoms to the right of the carbon atom to which said substituent is bonded.

35. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said tissue is heart tissue.

36. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said tissue is liver tissue.

37. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said tissue is tumor tissue.

38. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said analog emits detectable positrons after being taken up by said tissue.

39. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said analog emits detectable photons after being taken up by said tissue.

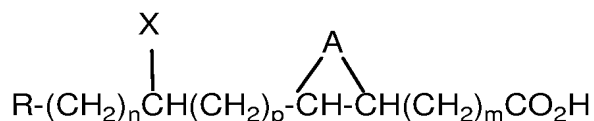
40. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein the carbon chain of said fatty acid is saturated.

41. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein the carbon chain of said fatty acid is unsaturated.

42. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 32, wherein said radioactive isotope comprises ^{18}F , ^{123}I , ^{131}I , $^{34\text{m}}\text{Cl}$, ^{75}Br , ^{76}Br and ^{77}Br .

43. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 42, wherein said radioactive isotope of a halogen is bonded to a carbon atom on the straight chain of said analog.

44. (Previously Presented) A radioactively labeled analog of a fatty acid that is taken up by mammalian tissue, comprising the formula:



wherein:

A = (CH₂)_y, O, S

y = 1, 2, 3, 4

cis and trans; R,R and S,S

m = 1-10

n = 14 - 8

p = 0 - 6

R = CH₃

X = radioactive isotope

and wherein the cyclic or heterocyclic organic substituent -CH-A-CH- causes said analog to be metabolically trapped in said tissue.

45. (Currently amended) The radioactively labeled analog of a fatty acid of claim 44, wherein said organic substituent is bonded to the fatty acid analog at the ~~C2, C3~~; C3, C4; C4, C5; or C5, C6 positions.

46. (Original) The radioactively labeled analog of a fatty acid of claim 44, wherein said organic substituent causes said analog to be metabolically trapped in said tissue by permitting the occurrence of the first beta-oxidation step in which the carbon atom to which said substituent is bonded is beta to the carboxyl carbon atom, while preventing the cleaving off from said analog of the two carbon atoms to the right of the carbon atom to which said substituent is bonded.

47. (Original) The radioactively labeled analog of a fatty acid of claim 44, wherein said tissue is heart tissue.

48. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 44, wherein said tissue is liver tissue.

49. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 44, wherein said tissue is tumor tissue.

50. (Original) The radioactively labeled analog of a fatty acid of claim 44, wherein said analog emits detectable positrons after being taken up by said tissue.

51. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 44, wherein said analog emits detectable photons after being taken up by said tissue.

52. (Original) The radioactively labeled analog of a fatty acid of claim 44, wherein the carbon chain of said fatty acid is saturated.

53. (Withdrawn) The radioactively labeled analog of a fatty acid of claim 44, wherein the carbon chain of said fatty acid is unsaturated.

54. (Original) The radioactively labeled analog of a fatty acid of claim 44, wherein said radioactive isotope comprises ^{18}F , ^{123}I , ^{131}I , $^{34\text{m}}\text{Cl}$, ^{75}Br , ^{76}Br and ^{77}Br .

55. – 117. (Cancelled)

118. (Withdrawn) The radioactively labeled analog of claim 3, wherein said organic substituent reduces metabolic dehydrogenation of said analog.

119. (Original) The radioactively labeled analog of claim 3, wherein said organic substituent reduces metabolic hydroxylation of said analog.

120. (Cancelled)

121. (Cancelled)

122. (Withdrawn) The radioactively labeled analog of claim 34, wherein said organic substituent reduces metabolic dehydrogenation of said analog.

123. (Original) The radioactively labeled analog of claim 34, wherein said organic substituent reduces metabolic hydroxylation of said analog.

124. (Withdrawn) The radioactively labeled analog of claim 46, wherein said organic substituent reduces metabolic dehydrogenation of said analog.

125. (Original) The radioactively labeled analog of claim 46, wherein said organic substituent reduces metabolic hydroxylation of said analog.

126. – 146. (Cancelled)

147. (Previously Presented) A radioactively labeled analog of a fatty acid that is taken up by mammalian tissue, comprising the formula:

[¹⁸F]-9-fluoro-3,4-cyclopropylheptadecanoic acid;
[¹⁸F]-9-fluoro-3,4-cyclobutylheptadecanoic acid;
[¹⁸F]-9-fluoro-3,4-cyclopentylheptadecanoic acid ;
[¹⁸F]-17-(4-fluorophenyl)-3,4-cyclopropyl-heptadecanoic acid; or
[¹⁸F]-17-(4-fluorophenyl)-3,4-cyclobutyl-heptadecanoic acid.

148. (Previously Presented) The radioactively labeled analog of a fatty acid of claim 147, wherein said analog is metabolically trapped in said tissue by permitting the occurrence of the first beta-oxidation step in which the carbon atom to which said substituent is bonded is beta to the carboxyl carbon atom, while preventing the

cleaving off from said analog of the two carbon atoms to the right of the carbon atom to which said substituent is bonded.

149. (Previously Presented) The radioactively labeled analog of a fatty acid of claim 147, wherein said tissue is heart tissue.

150. (Previously Presented) The radioactively labeled analog of a fatty acid of claim 147, wherein said analog emits detectable positrons after being taken up by said tissue.

151. (Previously Presented) The radioactively labeled analog of claim 147, wherein said organic substituent reduces metabolic hydroxylation of said analog.

152. (New) The radioactively labeled analog of claim 1, wherein m is 1.

153. (New) The radioactively labeled analog of claim 152, wherein Z represents a cyclopropyl group.